

Work Order ID 93186

93186

Page 1

November-15-12 9:04:24 AM

Item ID: D3407-041

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Tow Ring

Start Date: 11/15/12 Start Qty: 12.00

12

Cust Item ID:

Required Date: 11/30/12 Req'd Qty: 12.00

12

Customer:

Reference:

Approvals: Process Plan: MLJ Date: 12-11-16

Tooling:

Date:

QC: _____ Date: _____

SPC (Y/N): _____

Date: _____

Run Start ***NR1***

Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| Draw Nbr | Revision Nbr | | | | | | | | |
| D3407 | Rev E | | | | | | | | |
| 100 | | 0.00 | | | | | | | |
| *100* | Large Fab | | | | | | | | |
| Large Fab | Memo | 0.00 | | | | | | | |
| Large Fab | Weld D3407-1/-5 using welding rod TIG174 as per Dwg D3407 & QSI 004 | | | | | | | | |
| | A/R TIG174 ROD Batch: <u>M101972</u> | | | | | | | | |
| 110 | QC9- Inspect visual per QSI004- Fusion Welds | 0.00 | | | | | | | |
| *110* | | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | |
| Quality Control | | | | | | | | | |
| 120 | QC5- Inspect part completeness to step on W/O | 0.00 | | | | | | | |
| *120* | | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | |
| Quality Control | | | | | | | | | |

11

Q 13-1-3

Cpl 13.1.4

11

Cpl 13.1.4

11

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

| | | | | | | | | | | | |
|--|------|------|-----|---|-------------------|---|-------------|--------------|--------------|--|--|
| Work Order: _____ Part No. _____ NCR No. _____ | | | | DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/> | | AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div> | | | | | |
| Root Cause | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector | | |
| Doc/Data <input type="checkbox"/> | | | | | | | | | | | |
| Equip/Tooling <input type="checkbox"/> | | | | | | | | | | | |
| Operator <input type="checkbox"/> | | | | | | | | | | | |
| Material <input type="checkbox"/> | | | | | | | | | | | |
| Setup <input type="checkbox"/> | | | | | | | | | | | |
| Other <input type="checkbox"/> | | | | | | | | | | | |
| Process <input type="checkbox"/> | | | | | | | | | | | |
| Supplier <input type="checkbox"/> | | | | | | | | | | | |
| Training <input type="checkbox"/> | | | | | | | | | | | |
| Unapproved <input type="checkbox"/> | | | | | | | | | | | |

| FAULT CATEGORY | | | | |
|--|---|---|---|--|
| Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube | General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio | <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions | <input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other | |

Work Order ID 93186

93186

Page 2

November-15-12 9:04:24 AM

Item ID: D3407-041 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Tow Ring
 Start Date: 11/15/12 Start Qty: 12.00 *12* Cust Item ID:
 Required Date: 11/30/12 Req'd Qty: 12.00 *12* Customer:
 Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
 QC: Date: SPC (Y/N): Date: Stop *NR2*

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--|--|----------------------|---------|---|--------------|---------------|---------------|------------------|-----------------|
| 130 *130* Powdercoat Powder Coating | White Gloss(Ref:4.3.5.3) per QSI005 4.3-Steel <i>M123383</i> Memo **Mask Threaded Section** START TIME: <i>10.05</i> OVEN TEMPERATURE: <i>400°</i> FINISH TIME: <i>10.35</i> | 0.00 0.00 | | | | <i>11</i> | <i>φ</i> | <i>12</i> | <i>13-1-11</i> |
| 140 *140* QC Quality Control | QC3- Inspect Part Finish Memo | 0.00 0.00 | | <i>AS</i> <i>5</i> <i>13-1-11</i> | | <i>11</i> | | | |
| 150 *150* Packaging Packaging | Identify as per dwg & Stock Location: <i>464</i> Memo | 0.00 0.00 | | | | <i>11x</i> | | | <i>13-01-14</i> |

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

| | | | | | | | | | | | |
|--|------|------|-----|---|-------------------|---|-------------|--------------|--------------|--|--|
| Work Order: _____ Part No. _____ NCR No. _____ | | | | DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/> | | AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div style="width: 30%;"> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div style="width: 30%;"> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div style="width: 30%;"> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div> | | | | | |
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| Doc/Data <input type="checkbox"/> | | | | | | | | | | | |
| Equip/Tooling <input type="checkbox"/> | | | | | | | | | | | |
| Operator <input type="checkbox"/> | | | | | | | | | | | |
| Material <input type="checkbox"/> | | | | | | | | | | | |
| Setup <input type="checkbox"/> | | | | | | | | | | | |
| Other <input type="checkbox"/> | | | | | | | | | | | |
| Process <input type="checkbox"/> | | | | | | | | | | | |
| Supplier <input type="checkbox"/> | | | | | | | | | | | |
| Training <input type="checkbox"/> | | | | | | | | | | | |
| Unapproved <input type="checkbox"/> | | | | | | | | | | | |

| FAULT CATEGORY | | | | |
|---|---|---|--|---|
| Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube | General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio | <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions | <input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge | <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other |

Work Order ID 93186***93186***

Page 3

November-15-12 9:04:24 AM

Item ID: D3407-041

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Tow Ring

Start Date: 11/15/12 Start Qty: 12.00

12

Cust Item ID:

Required Date: 11/30/12 Req'd Qty: 12.00

12

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

QC21- Final Inspection - Work Order Release

0.00

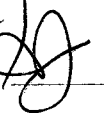
160

QC

Memo

0.00

Quality Control

13/1/15 

1301-14

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

| Work Order: _____ Part No. _____ NCR No. _____ | | | | DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/> | | AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div> | | | | | |
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| Operator <input type="checkbox"/> | | | | | | | | | | | |
| Material <input type="checkbox"/> | | | | | | | | | | | |
| Setup <input type="checkbox"/> | | | | | | | | | | | |
| Other <input type="checkbox"/> | | | | | | | | | | | |
| Process <input type="checkbox"/> | | | | | | | | | | | |
| Supplier <input type="checkbox"/> | | | | | | | | | | | |
| Training <input type="checkbox"/> | | | | | | | | | | | |
| Unapproved <input type="checkbox"/> | | | | | | | | | | | |

| FAULT CATEGORY | | | | | | | | | | | | |
|---|--|--|---|--|--|---|--|--|---|--|--|--|
| Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube | | | General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio | | | <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions | | | <input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge _____ _____ _____ | | <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other _____ _____ _____ | |

November-15-12 9:04:23 AM

Required Qty: 12.00

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|-----------------|-----------------|-------------|--------------|---------------|----------------|--------|
| D3407-1 | | Manufactured | No | | | 100 | Each | 6.0000 | 1 | 12 | | | |
| Stem | | | | | | | | | | | | | |
| | | 92142 x 11 | | | | | | | | | | | |
| | | | | <u>Location</u> | | <u>Loc Qty</u> | | <u>Loc Code</u> | | | | | |
| | | | | WA | | 6 | | | | | | | |
| | | | | 88234 | | 6 | | | | | | | |
| D3407-5 | | Manufactured | No | | | 100 | Each | 39.0000 | 1 | 12 | | | |
| Ring | | | | | | | | | | | | | |
| | | | | <u>Location</u> | | <u>Loc Qty</u> | | <u>Loc Code</u> | | | | | |
| | | | | WA | | 39 | | | | | | | |
| | | | | 90116 | | 15 | | | | | | | |
| | | | | 92177 | | 24 | | | | | | | |

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

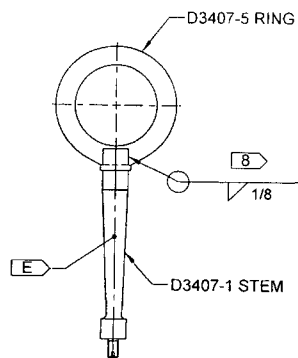
| | | | | | | | | | | | | | | | | | | |
|--|---|---|--------------------------------------|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|------------------------------------|--|----------------------------------|--|------------------------------------|--|--------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|
| Work Order: _____ Part No. _____ NCR No. _____ | DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/> | AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table> | Skid-tube <input type="checkbox"/> | Crosstube <input type="checkbox"/> | Water Jet <input type="checkbox"/> | Engineering <input type="checkbox"/> | Machining <input type="checkbox"/> | Small Fab <input type="checkbox"/> | Prod. Eng. Coord. <input type="checkbox"/> | Quality <input type="checkbox"/> | Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/> | Large Fab <input type="checkbox"/> | Composite <input type="checkbox"/> | Supplier <input type="checkbox"/> | |
| Skid-tube <input type="checkbox"/> | Crosstube <input type="checkbox"/> | Water Jet <input type="checkbox"/> | Engineering <input type="checkbox"/> | | | | | | | | | | | | | | | |
| Machining <input type="checkbox"/> | Small Fab <input type="checkbox"/> | Prod. Eng. Coord. <input type="checkbox"/> | Quality <input type="checkbox"/> | | | | | | | | | | | | | | | |
| Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/> | | | | | | | | | | | | | | | |
| Large Fab <input type="checkbox"/> | Composite <input type="checkbox"/> | Supplier <input type="checkbox"/> | | | | | | | | | | | | | | | | |

| Root Cause | Date | Step | Qty | Description of work order update or Non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|--|------|------|-----|---|-------------------|--------------------|-------------|--------------|--------------|
| Doc/Data <input type="checkbox"/> | | | | | | | | | |
| Equip/Tooling <input type="checkbox"/> | | | | | | | | | |
| Operator <input type="checkbox"/> | | | | | | | | | |
| Material <input type="checkbox"/> | | | | | | | | | |
| Setup <input type="checkbox"/> | | | | | | | | | |
| Other <input type="checkbox"/> | | | | | | | | | |
| Process <input type="checkbox"/> | | | | | | | | | |
| Supplier <input type="checkbox"/> | | | | | | | | | |
| Training <input type="checkbox"/> | | | | | | | | | |
| Unapproved <input type="checkbox"/> | | | | | | | | | |

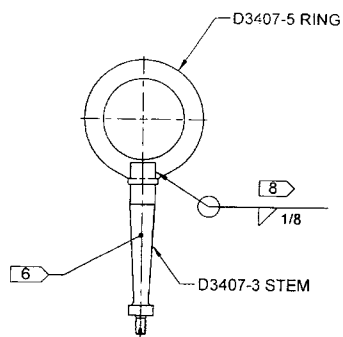
FAULT CATEGORY

| | | | | |
|---|---|---|--|---|
| Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube | General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio | <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions | <input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge | <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other |
|---|---|---|--|---|

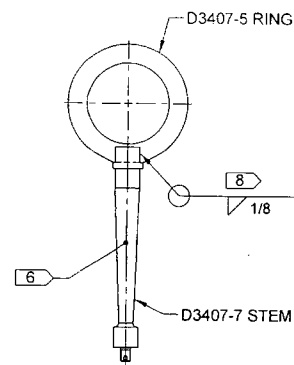
| E | | | PART NUMBER | DESCRIPTION |
|----------|----------|----------|-------------|-------------|
| QTY -041 | QTY -043 | QTY -045 | | |
| X | | | D3407-041 | TOW RING |
| | X | | D3407-043 | TOW RING |
| | | X | D3407-045 | TOW RING |
| 1 | | | D3407-1 | STEM |
| | 1 | | D3407-3 | STEM |
| 1 | 1 | 1 | D3407-5 | RING |
| | | 1 | D3407-7 | STEM |



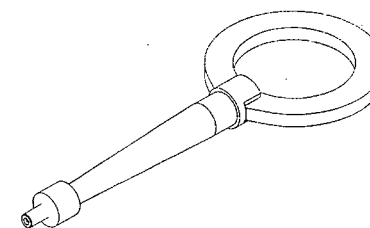
D3407-041 TOW RING



D3407-043 TOW RING



D3407-045 TOW RING



STOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO 93186 MLJ
12-11-16

RELEASED

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3 (EXCEPT THREADS)
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3407-XXX" USING BLACK FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: D3407-041 - 0.60 lbs, D3407-043 - 0.53 lbs, D3407-045 - 0.61 lbs
- 8) WELD PER DART QSI 004 ON ALL EDGES BETWEEN STEM AND RING

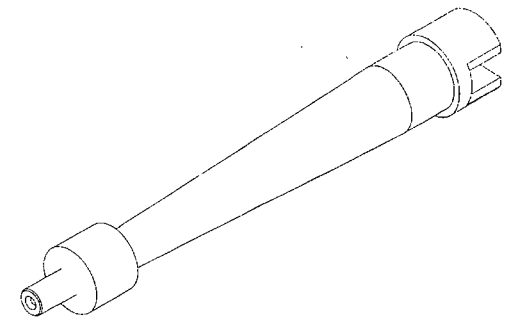
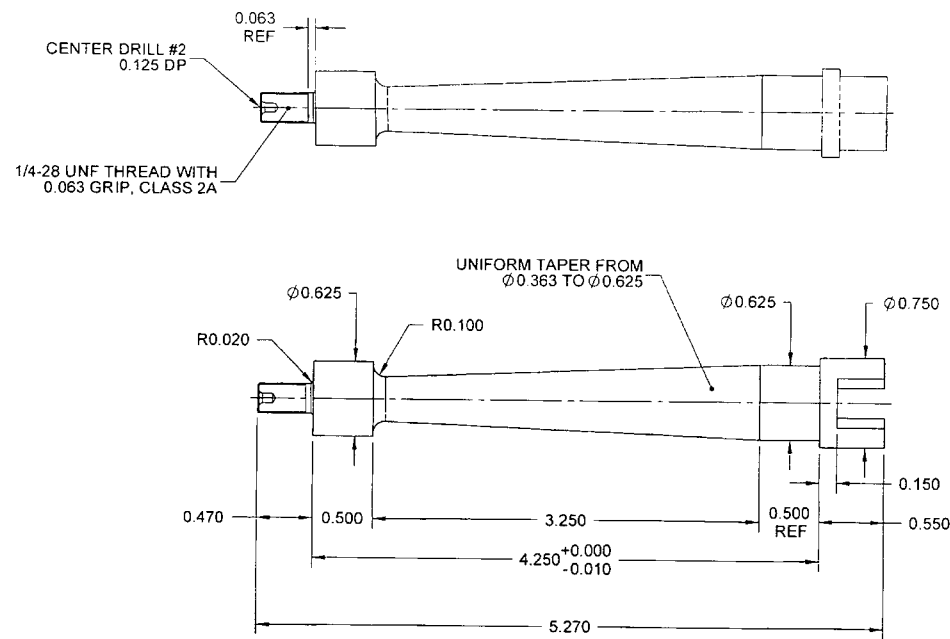
| | | | |
|------------|---|----|----------|
| E | ADD D3407-045 (ZN B2-1, D8-1); ADD D3407-7 (ZN B6-5); REVISED NOTE 6 TO ADD IDENTIFICATION (ZN A5-1); REASON: PRODUCTION FACILITY | PH | 08.07.23 |
| D | D3407-1/-3 SLOT WAS ROUND NOW FLAT FOR ASSEMBLY WITH D3407-5 (ZN C2-2, C2-3); D3407-5 WAS ROUND NOW FLAT ON ONE END FOR ASSEMBLY WITH D3407-1/-3 (ZN B6-4); REASON: PRODUCTION FACILITY | PH | 08.04.07 |
| C | -1/-3 LONGER FOR FIT W/WASHER | CP | 05.09.09 |
| B | UPDATE DIAMETER, THREAD CLASS ADDED | CP | 05.06.17 |
| A | NEW ISSUE | CP | 05.03.16 |
| REV. | DESCRIPTION | BY | DATE |
| DESIGN | | | |
| DRAWN | | | |
| CHECKED | | | |
| MFG. APPR. | | | |
| APPROVED | | | |
| DE APPR. | | | |
| DATE | 08.07.23 | | |

DART AEROSPACE USA, INC.
PORT HADLOCK, WA

DRAWING NO. **D3407** REV. E
SHEET 1 OF 5
TITLE **TOW RING** SCALE NTS

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93186



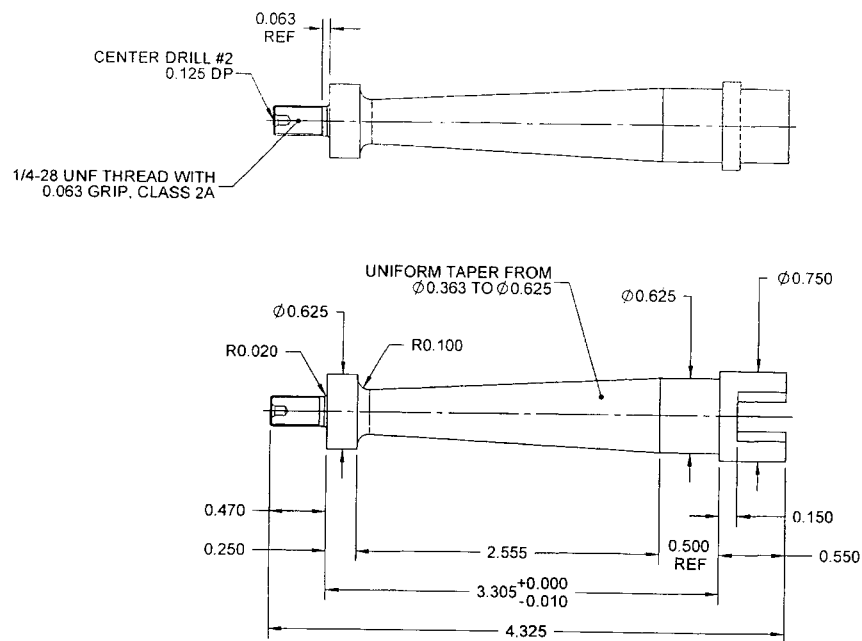
D3407-1 STEM

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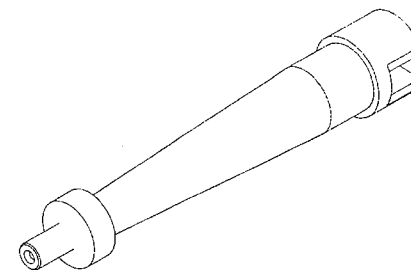
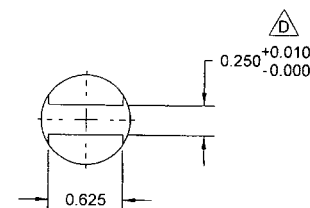
- NOTES:**
- 1) MATERIAL: 17-4 PH SS ROUND BAR PER AMS 5643 (REF. DART SPEC M17-4-R)
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: MACHINE ALL INSIDE EDGES WITH A 0.010 RADIUS
 - 6) IDENTIFICATION: N/A
 - 7) WEIGHT: 0.33 lbs

| | | | |
|------------|----------|--|--------------|
| DESIGN | | DART AEROSPACE USA, INC. | |
| DRAWN | | PORT HADLOCK, WA | |
| CHECKED | | DRAWING NO. | REV. E |
| MFG. APPR. | | D3407 | SHEET 2 OF 5 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | TOW RING | NTS |
| DATE | 08.07.23 | <small>COPYRIGHT © 2025 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small> | |

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D3407-3 STEM

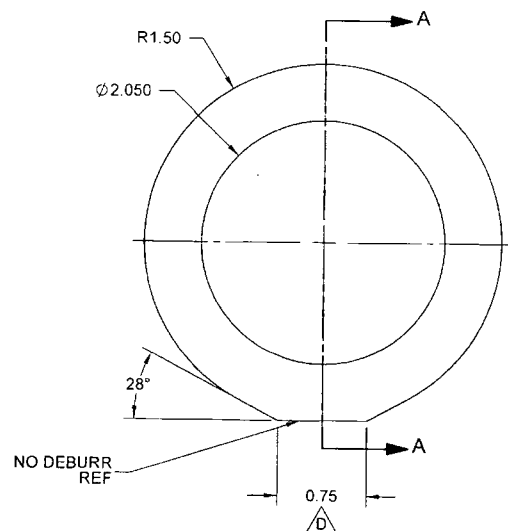


- NOTES:
- 1) MATERIAL: 17-4 PH SS ROUND BAR PER AMS 5643 (REF. DART SPEC M17-4-R)
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: MACHINE ALL INSIDE EDGES WITH A 0.010 RADIUS
 - 6) IDENTIFICATION: N/A
 - 7) WEIGHT: 0.27 lbs

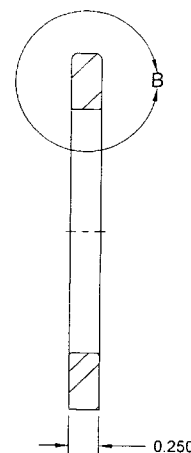
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| DESIGN | | DART AEROSPACE USA, INC. | |
| DRAWN | | PORT HADLOCK, WA | |
| CHECKED | | DRAWING NO. | REV. E |
| MFG. APPR. | | D3407 | SHEET 3 OF 5 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | TOW RING | NTS |
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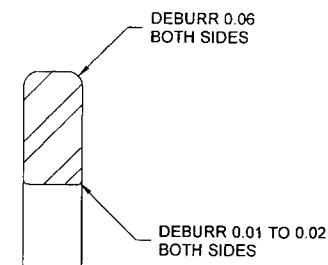
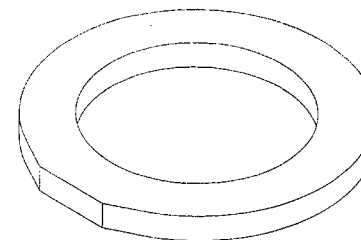
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D3407-5 RING



SECTION A-A



**DETAIL B
SCALE 2X**

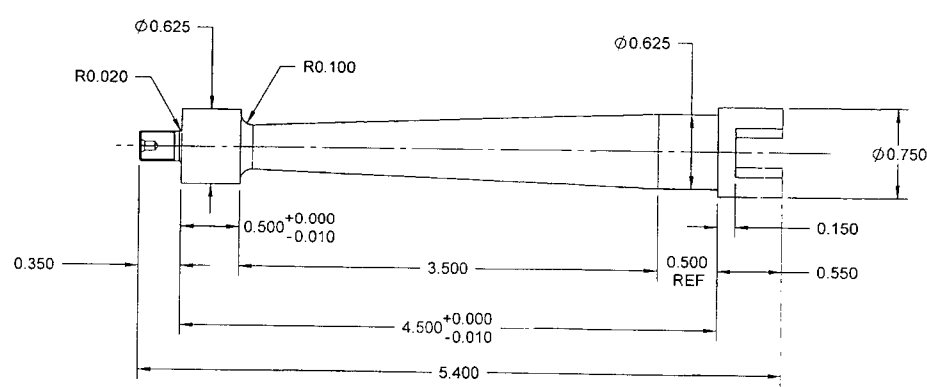
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08-06-01/18

- NOTES:**
- 1) MATERIAL: 17-4 PH SS BAR PER AMS 5604/5643 (REF. DART SPEC M17-4-B)
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: N/A
 - 6) IDENTIFICATION: N/A
 - 7) WEIGHT: 0.27 lbs

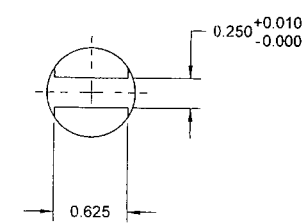
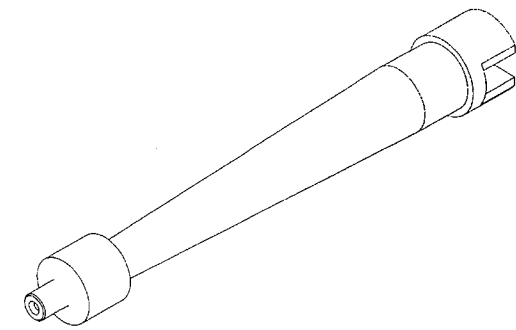
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|------------|----------|---|--------------|
| DESIGN | 90 | DART AEROSPACE USA, INC. PORT HADLOCK, WA | |
| DRAWN | 1/8 | | |
| CHECKED | | DRAWING NO. | REV. E |
| MFG. APPR. | | D3407 | SHEET 4 OF 5 |
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0.063
REF
CENTER DRILL #2
0.125 DP

1/4-28 UNF THREAD WITH
0.063 GRIP, CLASS 2A





D3407-7 STEM



RELEASED

- NOTES:**
- 1) MATERIAL: 17-4 PH SS ROUND BAR PER AMS 5643 (REF. DART SPEC M17-4-R)
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: MACHINE ALL INSIDE EDGES WITH A 0.010 RADIUS
 - 6) IDENTIFICATION: N/A
 - 7) WEIGHT: 0.34 lbs

| | | | |
|------------|---|---|--------------|
| DESIGN | AJS | DART AEROSPACE USA, INC. | |
| DRAWN | JPT | PORT HADLOCK, WA | |
| CHECKED |  | DRAWING NO. | REV. E |
| MFG. APPR. | | D3407 | SHEET 5 OF 5 |
| APPROVED | | TITLE | SCALE |
| DE APPR. |  | TOW RING | NTS |
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